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EXAMINER

TRAN, KHANH C

ART UNIT PAPER NUMBER

2631

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/540,289

Applicant(s)

AGEHARI, MITSUHIRO

Examiner

Khanh Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The Amendment filed on 04/08/2004 has been entered. Claims 1-4 are pending in this Office action.

Response to Arguments

2. Applicant's arguments filed on 04/08/2004 have been fully considered but they are not persuasive.

- Applicant argues on pages 3-4 of the Amendment that Van Nee invention differs from claim 1 because the patent application, as defined in claim 1, utilizes "a single clock signal without the necessity of varying the internal clock signal".

On the contrary of Applicant's assertions, Van Nee teachings clearly address the claimed language. Claim 1 preamble calls for "a multi-rate transmission apparatus in which a coding ratio is varied in accordance with an input modulation operation mode to allow a transmission operation with a single input clock signal in accordance with the input modulation mode ...". Figure 1 of Van Nee invention illustrates an OFDM transmitter in which a single input clock signal from the clock 17, as claimed, is provided in accordance of each combination of coding and modulation scheme. Applicant's arguments "a single clock signal without the necessity of varying the internal clock signal" have not been claimed in the claimed language. In light of the foregoing reasons, the

rejection of claims 1-2 and 4 still stands on the same ground as stated in the last Office action.

Note: the rejection of claims 1-2 and 4 in the last Office action, recited here for reference purposes, is shown below:

Claim Rejections - 35 USC § 103

3. Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Nee U.S. Patent 6,175,550 B1.

Regarding claim 1, Van Nee invention is directed to OFDM modulation schemes that are suitable to provide a wide range of information transfer rates in a wide range of physical environments. Figure 1 illustrates an OFDM transmitter 10 having signal circuitry 11 which receives a data stream of data bits from a data source 12. In column 3, line 66 through column 4, line 17, the coding block 14 receives the data stream and partitions the data stream into successive groups or blocks of bits. The coding block 14 introduces redundancy for forward error correction coding. The blocks of coded data bits are input into N-points complex Inverse Fast Fourier Transform (IFFT) 16. The output of the IFFT 16 is parallel-to-serial converted to produce an OFDM symbol. The RF transmitter 22 transmits the OFDM symbol through an antenna 24. Van Nee further discloses in certain embodiments according to other aspects of the present invention, variable data

rate with OFDM transmitter are achieved by using different forward error correction coding schemes and/or variable modulation schemes for each carrier as controlled by a dynamic control circuitry 15. Clearly, each combination of coding scheme and modulation scheme produces different transmission data rate. The dynamic control circuitry 15 is also responsive to the external settings as shown in figure 1. The clock 17 provides a time base for the coding 14, the IFFT 16, the cyclic prefix and windowing 18, and the D/A 20.

Van Nee does not show in figure 1 a data processing means for reading in data having a bit width suitable for the modulation system corresponding to the input modulation mode.

However, as mentioned above, the coding block 14 receives data stream and partitions the data stream into successive groups or blocks of bits, hence, it would have been obvious for one of ordinary skill in the art at the time of the invention that the coding block 14 includes a data processing section in the front end to read in data having a bit width suitable for the modulation system.

Furthermore, the dynamic control circuitry 15 is also responsive to the external settings as shown in figure 1 to set the coding rate / modulation scheme for a particular data rate.

Regarding claim 2, as recited in claim 1, the coding block 14, including a data processing section in the front end to read in data, receives the data stream and partitions the data stream into successive groups or blocks of bits. Van Nee does not

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show explicitly a transmission memory for storing transmission data of m-bit strings and a memory for temporarily storing the data of n-bit strings as claimed. As well known in the art, data is read in and always buffered at the front end. Hence, as would be appreciated by one of ordinary skill in the art, the coding block 14, as taught by Van Nee, would also include a buffer (or memory) large enough to hold transmission data of m-bit strings. As recited above, the coding block 14 partitions the data stream into successive groups or blocks of n-bits. Evidently, the coding block 14 converts data of m-bit strings into groups or blocks of n-bit strings to be used for coding processing. The coding block 14 would inherently include a memory for temporarily storing the data of n-bit strings.

Regarding claim 4, the control circuit 15, shown in figure 1 (column 4, line 58 through column 6, line 10), scales operating parameters and characteristics by the controlling the clock 17 to adjust the time base clock. Clearly, the control circuit 15 dynamically determines the transmission timing as claimed. The blocks of coded data bits are input into a complex IFFT 16 for producing an OFDM symbol. Hence, the complex IFFT 16 as taught by Van Nee corresponds to the modulation data allocation circuit as claimed in the patent application. Lastly, a RF transmitter 22 transmits the modulation data according to the time base clock.

Allowable Subject Matter

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4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT


JEAN B. CORRIELUS
PRIMARY EXAMINER

6/22/04